SCHAEFER

User manual LCD 240-2xx

LCD 240-2VS
LCD 240-2VP
LCD 240-2HS
LCD 240-2HSC
LCD 240-2HP
LCD 240-2HPC

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1 Introduction

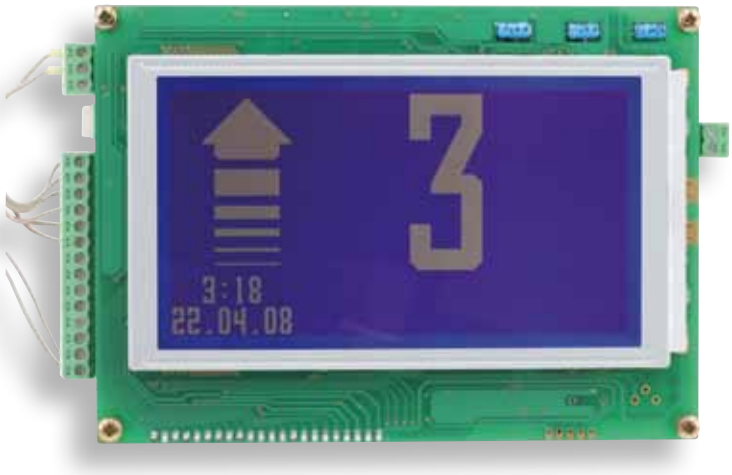
Note Available features depend on urchased device version. All here described features are not available in all device versions.

LCD240 is a graphic LCD display with a horizontal resolution of 128 by 240 and vertical resolution of 240 by 128 pixels. The display is optimized for lift applications. It can be assembled either to a car or to a level. It can present floor markings, direction arrows and other graphical symbols needed for special indications. Also other information, such as time and date, a company logo or "floor info pictures", can be presented on specific versions. The user editable floor info pictures enable presentation of any useful information associated with certain floor(s) in addition to a regular car position indication.

2 Display items, symbols and fields

Display is divided to four sub-areas. Names of these fields are as follows:

Arrow/symbol field (80 x 96)
Floor marking field (48 x 96)
Logo field (12 floor info pictures only available for LCD 240 HXC) (160 x 32)
Date and time field (only available for version HX)



In normal situation an arrow is displayed in the "arrow/symbol field" and a floor marking is displayed in the "floor marking field".

Appearance of the arrows can be either automatic or externally controlled. Selection is made in the setup menu.

When the external mode ("EXT") is selected, appearance and direction of arrow is controlled by 2 inputs ARR-UP and ARR-DOWN (J2 / 13...14). Input B5/MOVE (J2 / 6) activates arrow scrolling.

3 Electrical connections

When the automatic arrow function is selected ("AUTO"), the microcontroller continuously observes the car position status input. In case of any change it evaluates the direction of car movement and presents an arrow pointing to that direction. When the floor code stop changing, the arrow is blanked after 3 seconds.

LCD240 is capable to present 4 different symbols. Their appearance is controlled by 4 symbol indication inputs (J2 / 7...10). In addition, the symbol number 4 can be configured to appear when the car is in a certain floor.

Symbols have priority: symbol number 3 overrides symbol number 4, symbol number 2 overrides symbols number 3 and 4, etc. Normally (and as factory default) symbol number 1 is used for fire alarm, 2 for overweight and 3 for service. Own symbols can be edited and downloaded by means of LCD240-2xx Configurator software.

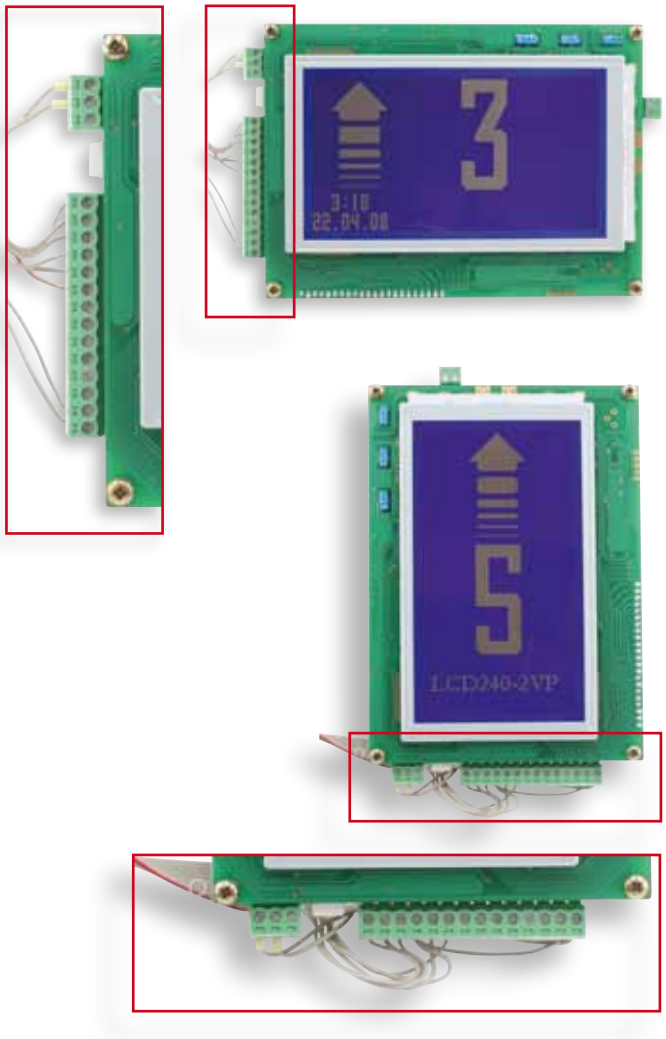
When any of the 4 symbols is displayed, it appears in the "arrow/symbol field". Arrow and floor marking are both displayed in the "floor marking field"

Optional "floor info pictures" appear always in the logo field and also optional date and time appear in the "date and time field".

Supply voltage (12V...24V DC) is applied to J1 connector. The device is controlled through a 14-pin connector (J2).

The connector has:
5 inputs (J2 / 1...5) for the position status,
4 inputs (J2 / 7...10) for the symbol indications,
2 inputs (J2 / 13...14) for the direction arrows and
1 input (J2 / 6) that activates the arrow scrolling

Refer to "Electrical specifications" for voltage levels and other details.



4 Electrical adjustment

LCD display contrast can be adjusted by trimming potentiometer R57. Default contrast setting is made in factory.

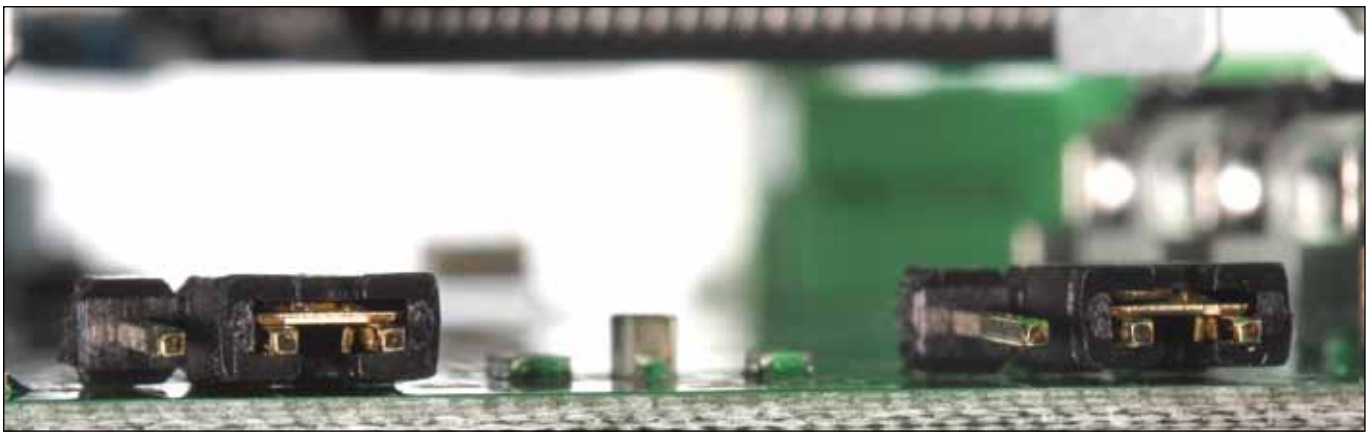
Two jumpers should be set to match the input signal polarity. J8 is for the position status inputs and J4 for the others. When changing the jumper positions, first disconnect the device from the power supply, then change the jumper positions and after that connect the device back to power supply. This is because the device automatically adapts to different input polarities by reading the jumper positions to memory when power is switched on.

5 Configuration

Device can be configured in two different ways: By means of devices own setup menu or with "LCD240-2xx Configurator" PC-software. We recommend using LCD240-2xx Configurator software; it is easier and more illustrative.

"Programming" must be enabled (ie. PROG ON), when programming the device with LCDtool. After programming, the mode has to be disabled (OFF).
When programming mode is "off", the pin connector is active.

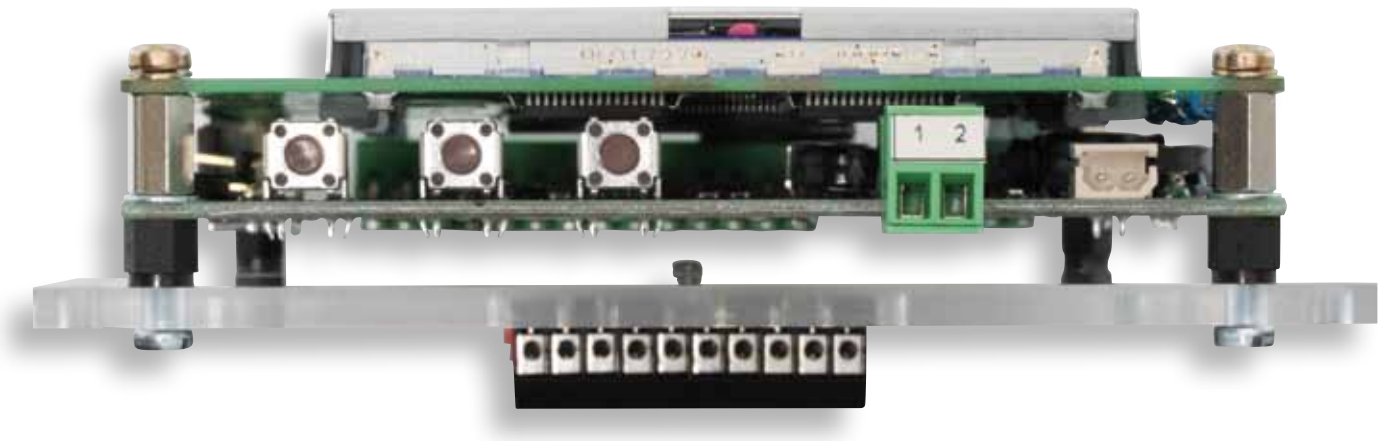
"Emergency info picture" parameter is used for selecting the picture to be shown in the center of the display when power failure occurs. There are three pictures available



6 Setup Menu

With the aid of the setup menu the user can make changes to certain properties of the device. Three push buttons are assigned to browsing of the menu. Pressing the SET push button for at least 3 seconds activates the setup menu.

If there are more than two possible values, FW steps to the next value and BW to the previous one. Value is stored by pressing the SET button. Text "STORED" is displayed and device returns to menu browsing mode. If browsing is paused (no key is pressed) for 10 seconds, device returns from setup menu to standard display mode.



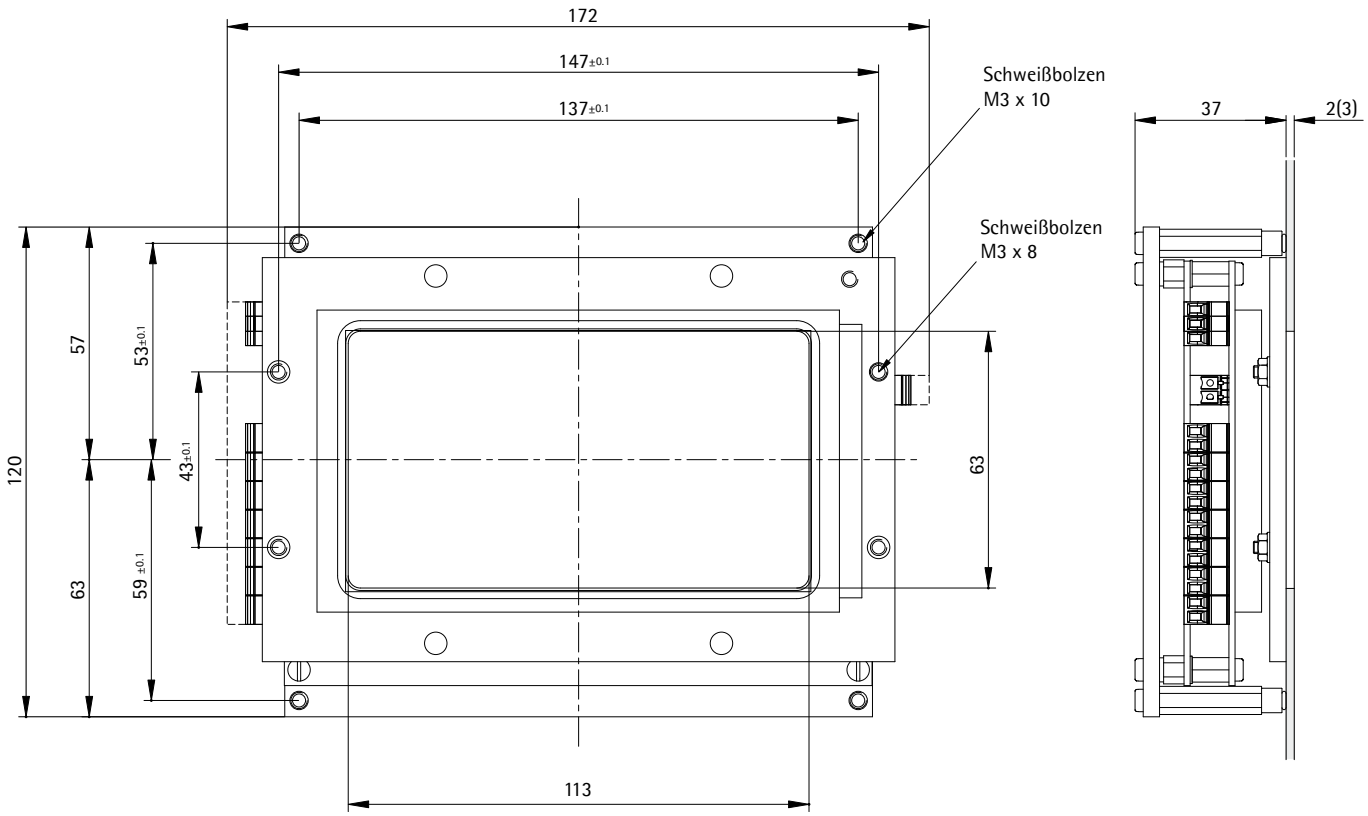
Setup Menu:

- Input coding (BIN/GRAY)
- Logo graphics (OFF/ON)
- Programming (PROG OFF/ON)
- Power Failure Polarity (PF POLAR 0/1)
- Arrow input selection (EXT/AUTO)
- Emergency info picture (EMER INFO 0...2)
- Floor marks (BUS 00...BUS 31)
- Time/Date

Menu items are scrolled by buttons FW (forward) and BW (backward) and selected by SET button. When selected, pressing the FW button toggles between values.

While editing floor marks there is one more step needed. Floor mark consists of up to two characters, so the first pressing of SET button makes first character editable by buttons FW and BW. Second pressing directs editing to second character and finally the value is stored by third pressing of the SET button like usually.

7 Assembly dimension



8 Available versions of LCD 240

8.1 LCD 240 vertikal series

Product name	Description	Emergency info	automatic arrow	programmable	Gong
LCD 240-2VS	Basic version with VEBUS interface	X	X	X	X
LCD 240-2VP	Basic version with parallel connection	X	X	X	

Description:

LCD 240 basic version
has three fields named as follows:

- Floor marking field (maximum 2 digits)
- Arrow/symbol field
- Logo field

All programming can be made with the optional PC-software (LCD240-2xx Configurator).

8.2 LCD 240 horizontal series

Product name	Description	Emergency info	Date and time	Floor info pictures	automatic arrow	programmable	Gong
LCD 240-2HS	Basic version with VEBUS interface	X			X	X	X
LCD 240-2HSC	Extended version with VEBUS interface	X	X	X	X	X	X
LCD 240-2HP	Basic version with parallel connection	X			X	X	
LCD 240-2HPC	Extended version with parallel connection	X	X	X	X	X	

Description:

LCD 240 basic version
has three fields named as follows:

- Floor marking field (maximum 2 digits)
- Arrow/symbol field
- Logo field

LCD 240 extended version has additional:

- Date and time field

The extended version can show floor pictures (advertisement, small Logo, small text (160x32)) in the Logo field. All programming can be made with the optional PC-software (LCD240-2xx Configurator).

9 Technical infomation

9.1 Functional specifications

- Available features depend on purchased device version. All here described features are not available in all device versions.
- Intended for lift applications
- Applicable for assembly either to the car or to a level.
- Maximum number of floors is 32
- Presents floor markings, direction arrows and graphical symbols needed for special indications
- Two different ways to control the arrows
  - External input signals for arrow direction control (EXT)
  - Automatic appearance of arrow when position input changes (AUTO)
- Floor mark consists of one or two letters or numbers (0...9, A...Z, minus sign)
- (Optional) presentation of time and date
- (Optional) presentation of floor associated bitmaps of size 160 x 32 pixels, capacity is 12 bitmaps
- Ability to display emergency information in a power failure situation automatically (requires external back-up power supplied to corresponding connector). Polarity is software selectable.
- Real time clock operates until year 2099 (LCD 240-V)
- Automatic daylight saving time change (LCD 240-V)

9.2 Display module specifications

- Display resolution: 240 x 128 pixels / 128 x 240 pixel(H x V))
- LCD type: STN, negative, blue, transmissive
- Backlight: long life white LED
- Active area: 114 mm x 64 mm / 64mm x 114mm
- Viewing angle: min. 40° (with contrast ratio = 1.4)
- Contrast ratio: typ. 5 (when _ = 10° and _ = 0°)
- Adjustable contrast (trimmer potentiometer)
- Expected lifetime 100 000 h

9.3 Electrical connections

- Power supply input
  - Operating voltage range, 12...30 VDC (max. 5% ripple voltage)
  - Current consumption, 65...113 mA @ 24 VDC (without gong)
- Backup battery input, min. 12 VDC (see emergency light documentation)
- Control interface (J2)
  - Internal pull-down or pull-up resistors depending on jumper settings
    - Jumpers are set to match control signal polarity. Two jumpers to individually set polarity for parallel position status
    - Pull-down/-up resistance: 10 kΩ
  - Input voltage range: 0...30 VDC:
  - Logic 0: 0...1 VDC
  - Logic 1: 10...30 VDC
  - Maximum input current: ±3mA (depending on input polarity) Parallel mode position input coding is selectable: Binary/Gray
  - Symbol control inputs:
    - 4 inputs for the symbol indications control
    - 2 inputs for the Gongs control (Gong up, Gong down)
    - 2 inputs for arrow direction control (arrow up, arrow down)
    - 1 input that activates arrow scrolling (move)
- Programming interface
  - RS-232 serial interface for LCDtool cable
- VEBUS serial communication interface (optional)
- RS-485 compatible bus connections
  - Protocol is developed and optimized for lift applications
  - Speed: 38400 bps

9.4 Configuration

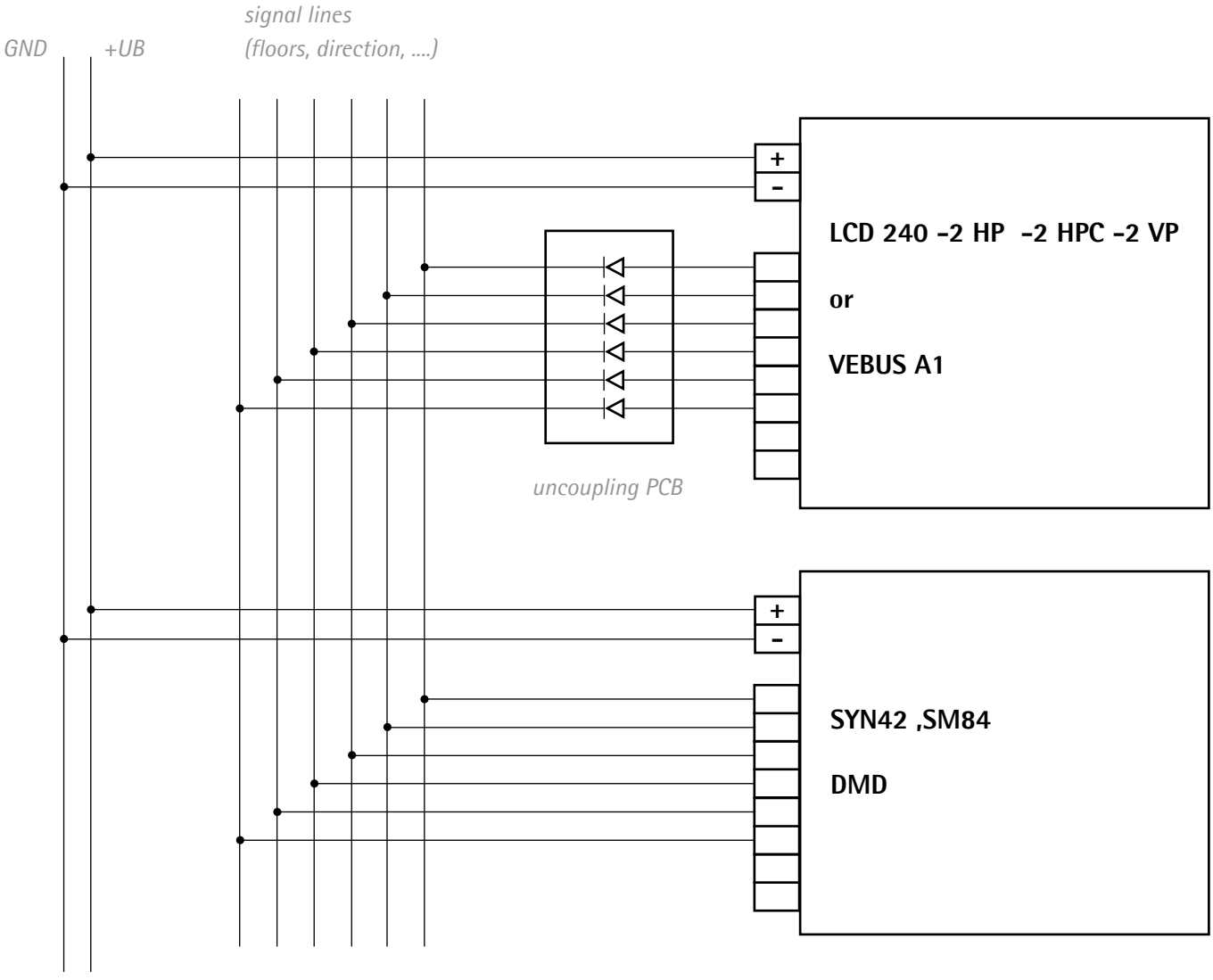
- Setup menu
  - Device configuration is made by means of displayed menu and 3 push buttons
  - Covers configuration of:
    - Input coding (BIN or GRAY)
    - Installation position selection (CAN/LANDING)
    - Logo graphics (LOGO OFF/ON)
    - Programming (PROG OFF/ON))
    - Power Failure Polarity (PF POLAR 0/1)
    - Arrow input selection (EXT/AUTO)
    - Emergency info picture (EMER INFO 0-2)
    - Time and date settings (RTC SET) (optional)
    - Floor marks (BUS 00...BUS 31)

10 Other devices wired in parallel

If other devices (e.g. SYN42, SM84; DMD) are wired in parallel to the LCD 240, an uncoupling PCB has to be inserted into the signal lines.

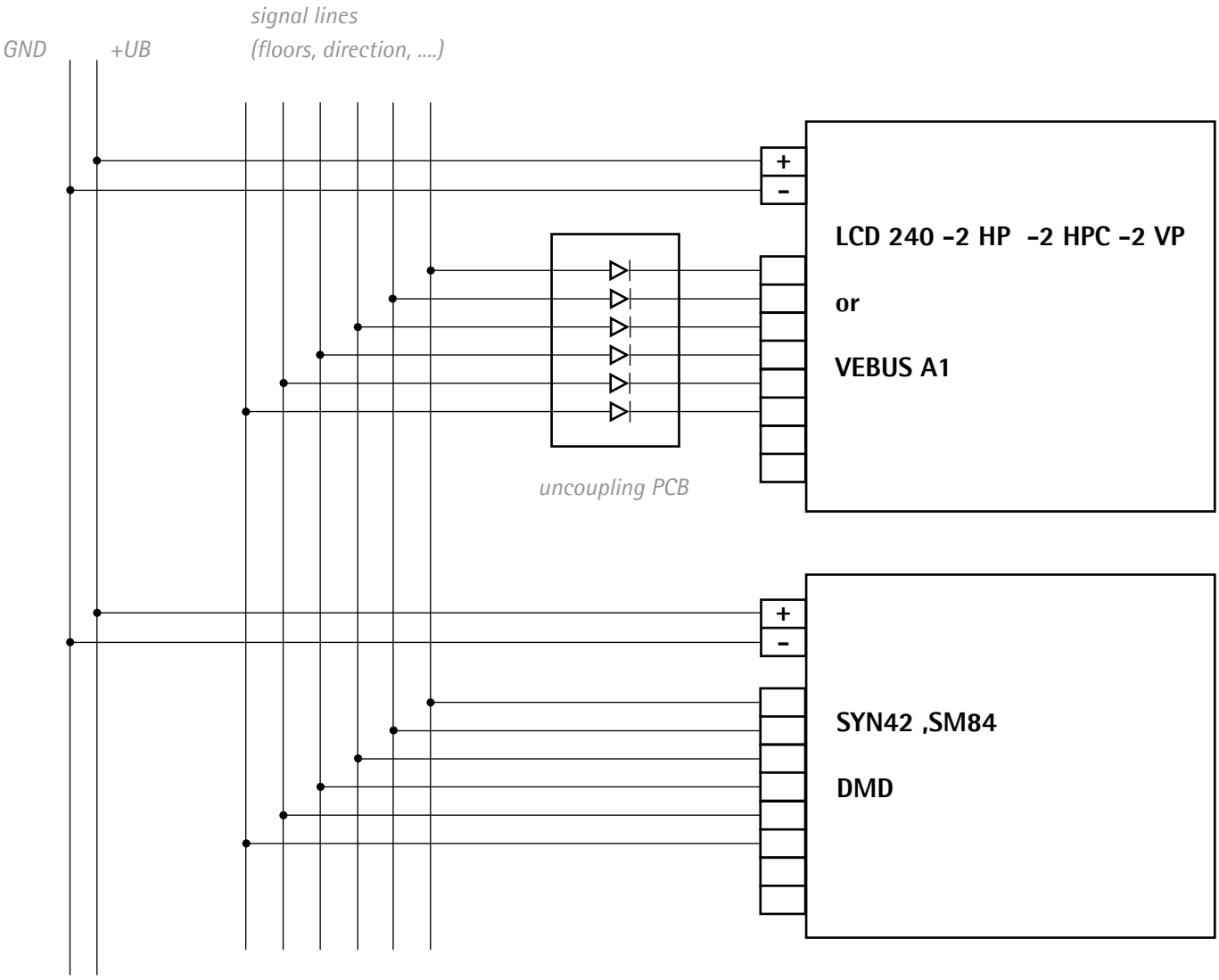
If more than 6 signal lines are used, a second uncoupling PCB is needed.

common anode



Other devices wired in parallel

common cathode



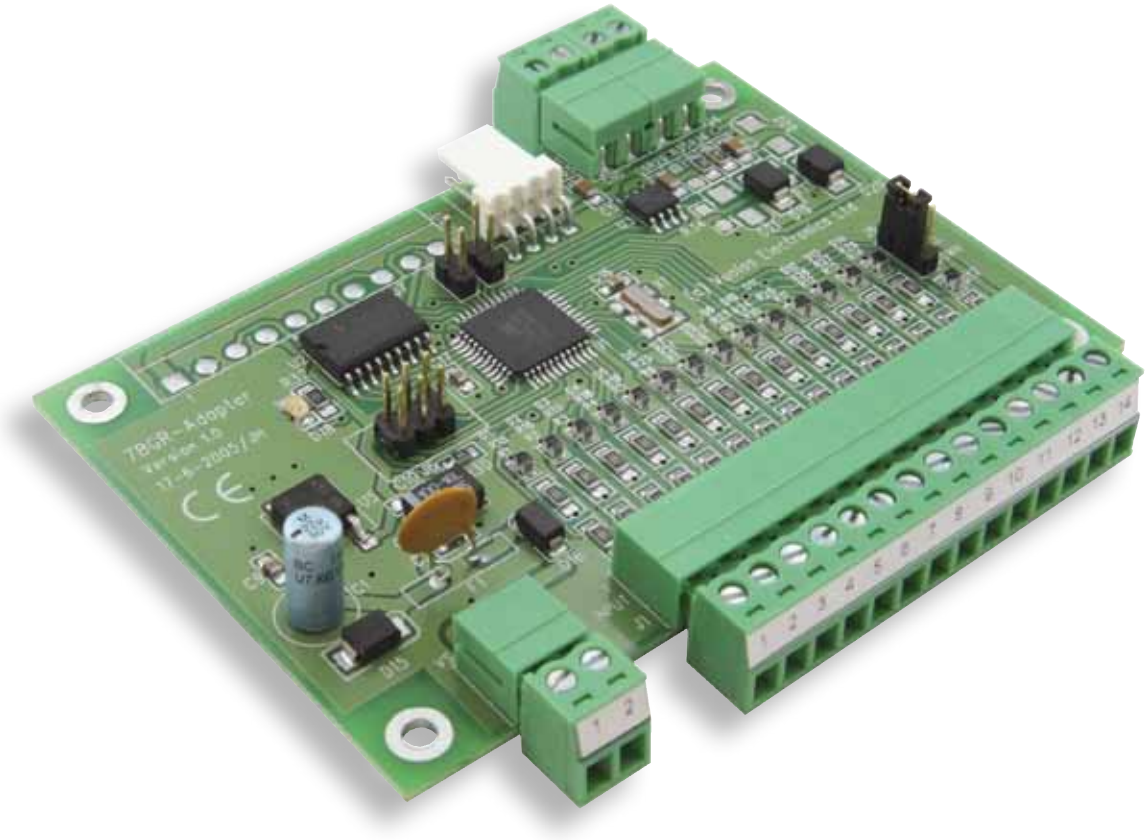
11 VEBUS A1 – Parallel to serial converter

11.1 Description

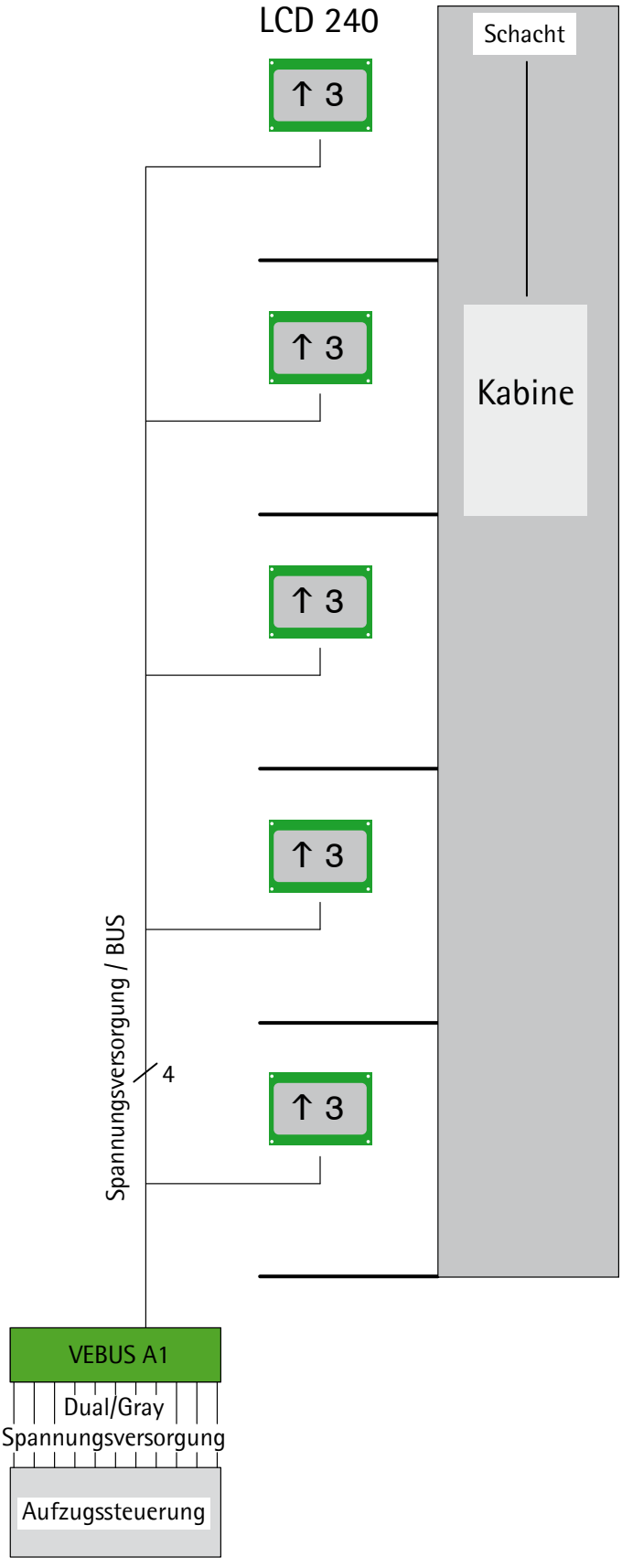
VEBUS A1 is a general purpose converter card for different bus interfaces. It is intended for lift applications. It converts typical binary parallel control to RS-485 compatible serial control.

10.2 Features

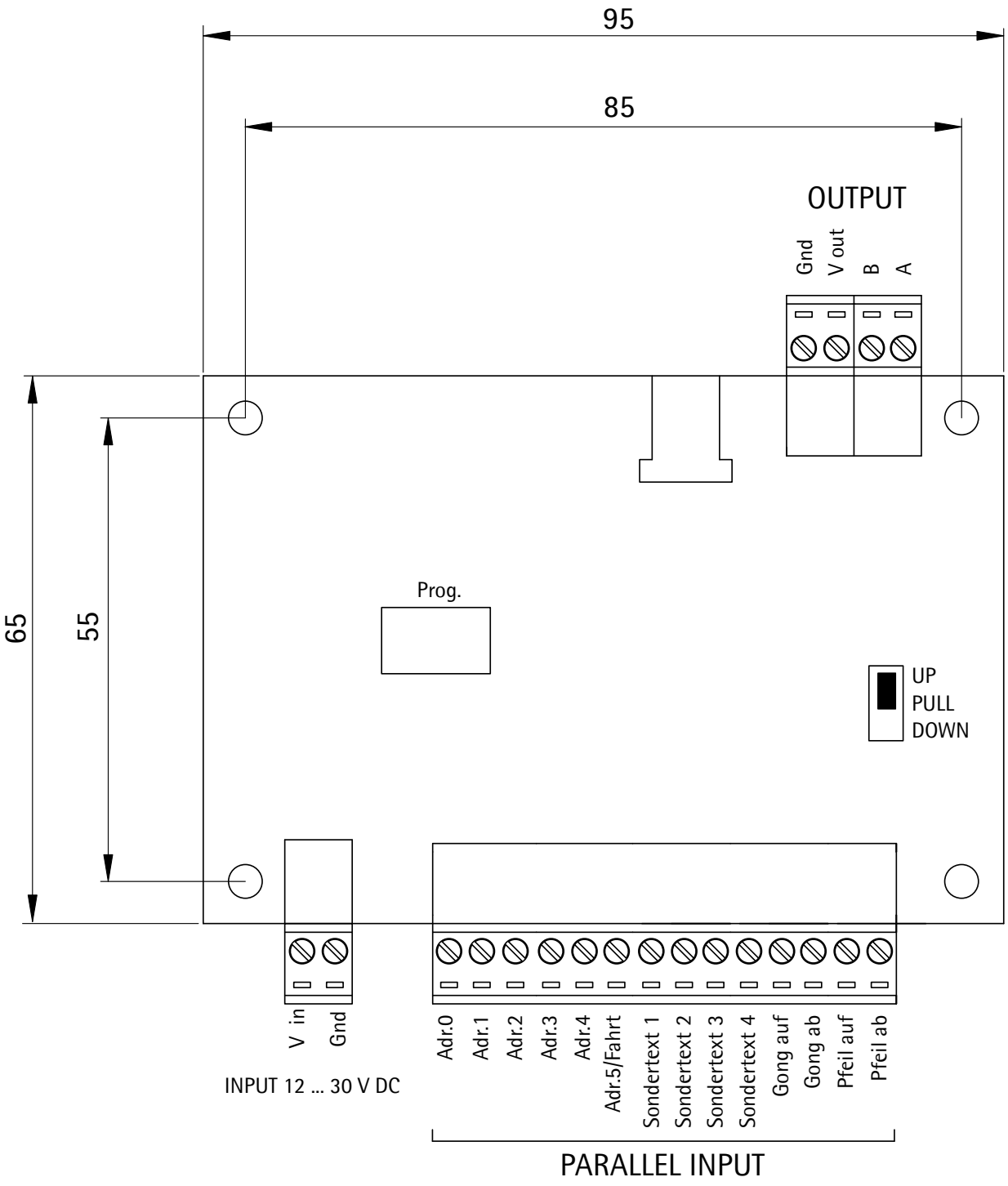
Intended for lift applications Maximum number of floors is 32 Converts parallel input to serial output (VEBUS) VEBUS is a RS-485 compatible serial interface designed for lift applications



11.3 System block diagram



11.4 connection



11.4.1 Electrical adjustment

- Power supply input
  - Operating voltage range, 12...30 VDC (max. 5% ripple voltage)
  - Current consumption, 33 mA @ 24 VDC (no load)
- Parallel control interface (J1)
  - Internal pull-down or pull-up resistors depending on jumper setting
    - Jumper is set to match control signal polarity (optional)
    - Pull-down/-up resistance: 10 kΩ
    - Input voltage range: 0–30 VDC
      - Power supply input:
      - Logic 0:0-1 VDC
      - Logic 1:10-30 VDC
  - Symbol control inputs:
    - 4 inputs for the symbol indications control
    - 2 inputs for arrow direction control (ARR-UP, ARR-DOWN)
    - 1 input for travelling signal
- VEBUS serial communication interface (optional)
- RS-485 compatible bus connections
  - Protocol is develop and optimized for lift applications
  - Speed: 38400 bps
- Feed through connector for supply voltage (J3),
  - Max. load 3A

11.5 Function

Device reads its parallel input every 100 ms. If there is a change in the parallel input, device immediately sends the serial control packet to V EBUS interface. Device also sends the serial control packet every 500 ms, if there are no changes in the parallel input.

10.6 Electrical adjustment

Jumper J5 should be set tomatch the input signal polarity. When changing jumper position, first disconnect the device frompower supply, then change the jumper position and after that connect the device back to power supply. This is because the device automatically adapts to different input polarities by reading the jumper position tomemory when power is switched on.

10.7 Size and environment

- Size (+additional space for connectors)
  - Physical dimensions: 95 mm x 65 mm x 18 mm
- Tolerances: ± 0,3 mm
- Operation environment
  - Temperature: 0–70° C
  - Dry environment, RH: < 85% (no condensation)
- Not to be used in wet, moist or dusty environment

Memo